**Turing**

1900 Embarcadero Road #104,

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Full-stack Challenge

Overview

In this challenge you will build an e-commerce system which allows users to search, add items to their shopping cart, create order and checkout successfully.

Given a database in MySQL, you will need to implement the backend and frontend (Check out the files at: <https://github.com/zandoan/turing-fullstack>).

**If you are strong in Node and React, please do this challenge in Node and React, since we have maximum customers who want Node+React full stack engineers, and lot of opportunities to match you quickly for medium to long term projects, if you do exceptional work in this project.**

If are not familiar with one or both of these frameworks, please feel free to use other frameworks/languages (Angular, Vue, PHP, C#, Python, Clojure, etc.). We have fewer customers interested  in full stack engineers skilled in these other technologies, but they still exist and we can match you if you do exceptional work in this project.

Any advanced techniques, tools, frameworks used in the code will also give you bonus points. Please add notes in the readme file so we can easily find and evaluate them.

Our customer companies have very high standards for software engineers, so please do your best possible work here, to impress them.

Core expectations

1. **UI Design:** clean and responsive design. You can use 3rd party component libraries. Use modern structure/technology you know (SCSS, HTML5, flex) in HTML/CSS.
2. **Functionalities:** work well as expected. Precise inputs/outputs. Users can go through flows smoothly. No critical bugs.
3. **System Design:** Use most advanced system architecture as you can.
4. **Coding:** clean code. Good coding style. Good comments. Easy to read, debug, and add more stuffs.
5. **Testing:** You should add test cases for main functions of the system.
6. **Deployment:** Host your solution online and give us the link of the website
7. **Documentation:** describe the architecture, technologies you use in documents, readme file.

Feature requirements

1. Users can see all items when entering the website
2. Items are displayed properly based on the selected department and category
3. Users can search items through search box
4. Support paging if we have to many items
5. Users can see item details by selecting a specific item
6. Users can add items to their shopping carts
7. Users can register/login using website custom forms, or social login libraries
8. Users can checkout with 3rd party payment gateways: Paypal, Stripe…
9. Users will get confirmations over emails about their orders

Frontend requirements

1. Elegant UI

* You are welcome to use any 3rd party component library like Bootstrap, Material Design. Try to polish the UI as much as you can.

1. Component rendered smoothly

* Data loaded from server side and rendered on components smoothly.

1. Strong frontend framework

* We strongly recommend use of modern architectures, frameworks (React most preferred,  Angular, Vue are okay also) to control flow, store client data...

1. Advanced client-side techstack

* We strongly recommend using advanced CSS/HTML/JS techniques (local storage…)

1. Clean code structure

* Code structure/directory makes sense and can be scaled easily

1. Friendly error messages

* Display custom error messages to users

Backend requirements

1. Strong backend framework

* Can develop backend APIs fast and easily
* Has a good solution (ORM..) to interact with the database
* Returns proper APIs to the frontend

1. Performance

* APIs should be fast. No timeout or long executions.
* You’ll be evaluated on your caching technique.

1. Security
   * The APIs should be secured well without security holes.
   * Use URL rewriting to support SEO and search engine friendly URLs
2. Clean code structure
   * Code structure/directory makes sense and can be scaled easily

Sample designs

Please check out the designs (<https://github.com/zandoan/turing-fullstack/tree/master/designs>), and some very simple mocks (<https://github.com/zandoan/turing-fullstack/tree/master/screenshots>). Feel free to redesign them and come up with the new designs that surprise us :)

       Once you complete, please send us the code and the link to your hosted solution.